

Sneha Sudhakaran

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SUMMARY PROFILE

- Computer science Assistant Professor with extensive experience in Android Reverse Engineering, Memory Forensics, and Network Security, Applied Machine Learning in Cyber Security Domain
- Knowledgeable IT security professional with 6 years of experience researching and implementing security solutions in academia and national organizations
- Expert in enhancing research accuracy and precision by carrying out system administration and network analysis
- Hands-on experience in C, Java, C++, and Python, along with Cyber Security certifications: **CEH** and **CHFI**
- Authored 8 technical papers, presented at 5 premier conferences (IEEE S&P, RAID, ACSAC, AAFS), and work recognized by several awards by WiCyS and by the Louisiana State University

EDUCATION

Louisiana State University, Baton Rouge, USA

May 2022

Doctor of Philosophy in Computer Science, **GPA:** 3.83/4.0

Thesis: Performing Memory Forensics for Large Object recovery from Android Application Memory- its impact and concerns

Amrita Vishwa Vidyapeetham, Coimbatore, India

Aug 2011-Aug 2013

Master of Technology in Cyber Security, **GPA:** 3.8/4.0

Calicut University, Calicut, India

Aug 2006-May 2010

Bachelor of Technology in Information Technology, **GPA:** 3.5/4.0

SELECTED SKILLS

Penetration Testing: BurpSuite, Metasploit, Nmap, Zmap

Network Security: tcpdump, Wireshark, Netcat

Skills: Reverse Engineering of Android Devices, Scada/Memory/Android/MultimediaForensics

Tools: Android – Android Studio, Apktool

Emulators like Genymotion, ADB

Memory Forensics – Volatility

Reverse Engineering – IDA PRO, GHIDRA

Decompiler – Jadx, Android Studio

Debuggers: gdb

Languages: Programming – C, C++, Python, Java

Scripting – Shell and Perl

Operating Systems: Windows, Linux, Mac, Android

Security Infrastructure : SWG, UBA, DLP, EDR, NAC

PROFESSIONAL EXPERIENCE

Florida Institute of Technology, L3harris Center for Science and Engineering, Melbourne, Florida **Aug 2022- Present**

- Teach Courses like Host and Application Security
- Advise students on FITSec Security team that targets Capture the Flag security contests
- Expand security research ideas to develop Graduate security research projects

Louisiana State University, Center for Computation & Technology (CCT) Baton Rouge, USA.

Graduate Assistant under Dr. Sai Pinnepalli

Aug 2020-May2022

- Track current security reports for network traffic at LSU and CCT
- Review status of Content Management System using framework like Drupal
- Help plan mitigation paths with special focus on Penetration testing, Network traffic monitoring

Louisiana State University, Baton Rouge, USA

Aug 2017-May 2022

Research / Teaching Assistant under Dr. Golden G. Richard III

- Designed research and experimental studies on Memory Forensics to extract multimedia objects from process memory
- Performed in-depth research to answer complex questions in the field of Android Forensics
- Collaborated with Dr. Aisha Ali Gombe (Asst. Professor at Towson University, Baltimore) to develop a tool kit for extracting multimedia objects from process memory in Android devices and generate minimal false positive. evidence
- Mentored five graduate and three undergraduate researchers and prepared annual reports for NSF
- Analyzed large complex sets of data and performed memory analysis and reverse engineering

University of New Orleans, New Orleans, USA

May 2016-Aug 2017

Research Assistant in Cyber Physical Systems Lab under Dr. Irfan Ahmed

- Gained in-depth knowledge on SCADA devices to perform research and solve complex problems in the field of Cyber Physical System Forensics
- Authored **2** technical papers in reputed conferences such as IEEE Security & Privacy and ACSAC

GJ Forensics, Kerala, India

Jul 2014-Aug 2015

Cyber Security Intern under Dr. Vinod P. Bhattathirippad

- Analyzed system risk on Windows to identify and implement appropriate security countermeasures
- Recommended POSAR extensions for water mark inclusions and published a technical paper in ADFSL-2015 conference

MG University, Kochi, Kerala, India

Jul-Aug 2014

Assistant Professor

- Collaborated with professors to design teaching plans, adapted methods of instruction and classroom materials to address individual student needs, and managed educational projects
- Developed course syllabus for Information Risk Management and Cyber Forensics, outlined standards, materials, grading procedures for students
- Evaluated and supervised student activities and performance levels to provide reports on academic progress

CERTIFICATIONS

- Certified Ethical Hacker (CEH), Credential id : ECC27124931769, Expires Dec 2024
- Certified Hacker and Forensic Investigator (CHFI), Credential Id : ECC67147118876, Expires Apr 2025

PROFESSIONAL MEMBERSHIP

- (AAFS) - American Academy of Forensic Sciences - Student Affiliate
- (WiCyS) Women in Cybersecurity – Student Member
- Women's Society of Cyberjutsu - Student Member
- (ACM) Association for Computing Machinery - Student Member
- (ACM) Association for Computing Machinery - Student Member
- (IEEE) The Institute of Electrical and Electronics Engineers - Student Member

AWARDS

- WiCyS (Women in Cyber Security) Student Scholarship 2021
- EC-Council Item Writer 2021 Digital Badge Achievement
- Amrita Cyber Security Board of Studies Member 2020-2022
- WiCyS (Women in Cyber Security) Student Scholarship 2020
- WiCyS Graduate Student Travel Stipend Scholarship 2020

ORAL PRESENTATION

- Sneha Sudhakaran, Aisha Ali-Gombe, Golden G. Richard III, “Correlating Garbage Collection and Android Object Recovery”, **2022 74th AAFS Annual Scientific Meeting**
- Sneha Sudhakaran, Aisha Ali-Gombe, Golden G. Richard III, “Evaluating the impact of External Runtime Factors on Android forensic tools”, **2021, 73rd AAFS Annual Scientific Meeting**
- Aisha Ali-Gombe, Sneha Sudhakaran, Andrew Case, Golden G. Richard III, “Proving Database Tampering Through In-Memory Object Reconstruction”, **2019, 71st AAFS Annual Scientific Meeting**

CONFERENCES

- Sneha Sudhakaran, Aisha Ali Gombe, Andrew Case, Golden G. Richard III, “Evaluating the Reliability of Android Userland Memory Forensics”, **ICCWS March 2022**
- Sneha Sudhakaran, Aisha Ali Gombe, Augustine Orgah, Andrew Case, Golden G. Richard III, “AmpleDroid Recovering Large Objects from Android Application Memory”, **IEEE Workshop on Information Forensics and Security Dec 2020**
- Ali-Gombe, Aisha, Sneha Sudhakaran, Andrew Case, and Golden G. Richard III, “DroidScraper: A Tool for Android In-Memory Object Recovery and Reconstruction”, **2019, 22nd International Symposium on Research in Attacks, Intrusions and Defenses (RAID 2019), pp. 547-559**
- Irfan Ahmed, Sebastian Obermeier, Sneha Sudhakaran, Vassil Roussev, “Programmable logic controller forensics”, **IEEE Security & Privacy, 2017, 15 (6), 18-24**
- Irfan Ahmed, Vassil Roussev, William Johnson, Saranyan Senthivel, Sneha Sudhakaran, “A SCADA system testbed for cybersecurity and forensic research and pedagogy”, **Proceedings of the 2nd Annual Industrial Control System Security Workshop, 2016, pp. 1-9**
- Polpaya Vinod Bhattathiripad, Sneha Sudhakaran, Roshna Khalid, “A New Cyber Forensic Philosophy for Digital Watermarks in the Context of Copyright Laws”, **Association for Digital Forensics, Security and Law 2015**
- Nimisha Ajayakumar, Sneha Sudhakaran, “Comparison in Honda Algorithm and Neural Network for Anti Cruise

Collision Avoidance System”, **International Journal of Digital Application & Contemporary research,2014**

- Nishna Soman, Sneha Sudhakaran, “An Advanced Approach towards Shadow Detection and Restoration in VHR Images”, **International Journal of Engineering Research and Technology, 2014**

POSTERS

- Sneha Sudhakaran, Aisha Ali Gombe, Golden G. Richard III, “On Reliability of Userland Memory Forensics”, Poster Presentation, **2021, WiCys virtual 2021**
- Sneha Sudhakaran, Aisha Ali Gombe, Andrew Case, Golden G. Richard III, “Extraction of Multimedia Large Objects Using Memory Forensics from the Android Runtime”, Poster Presentation, **2020, WiCys virtual 2020**

REFERENCES

Golden G. Richard III

Professor

Division of Computer Science and Engineering

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Aisha Ali-Gombe

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